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AMENDMENT UNDER 37 C.F.R. § 1.116
APPLICATION NO. 09/545,834
ATTORNEY DOCKET NO. Q58793

REMARKS

General remarks

Claims 1, 4, 5, 33-41, 66-74, and 80-88 are now all the claims pending in the application. New claims 80-88 are based on claims 33-41 already of record. No new matter is included in new claims 80-88. No excess claim fee is required.

The rejection of claims 1, 4, 5, and 66-74.

The Examiner rejected claims 1, 4-5 and 66-74 under 35 U.S.C. § 103(a) as being unpatentable over Terasawa '766 in view of Terasawa '305 (newly-cited). These rejected claims include independent claims 1, 5, 66, and 69. Applicant respectfully traverses this rejection, first with respect to independent claim 1. In making this rejection, the Examiner acknowledged that Terasawa '766 "fail to teach the air valve always closes the air hole while the suction pump decompresses the internal space of the capping unit."

To compensate for this deficiency of Terasawa '766, the Examiner relied on Terasawa '305. In particular, the Examiner asserted that Terasawa '305 "teaches the air valve always closes the air hole while the suction pump decompresses the internal space of the capping unit (Fig. 9C-9D)."

The Examiner concluded it "would have been obvious" to use the teaching of Terasawa '305 in the capping unit of Terasawa '766 "to maintain and increase the internal pressure so the ink can be suck out by the pump."

Combination of Terasawa '305 and Terasawa '766 unreasonable

Applicant respectfully submits that it would have been unreasonable to expect the artisan of ordinary skill ever to have combined the teachings of Terasawa '305 with those of Terasawa '766. One reason for this is because the sequences disclosed in Terasawa '305 are based on a precondition that the valve unit is absent, whereas the sequences disclosed in Terasawa '766 (also the present claims) requires the valve unit. If a valve unit is not present in a given

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arrangement, the artisan of ordinary skill would seek to operate according to the teachings of an arrangement that works with a valve unit. The converse, *mutatis mutandis*, is also true.

*Combination of Terasawa '305 and Terasawa '766 inoperative
to achieve object of Terasawa '305*

In addition, if Terasawa '305 were combined with Terasawa '766, somehow attaining the subject matter of the now-pending claims, the original function of Terasawa '305 is destroyed. That is, the objective in Terasawa '305 is to decrease ink flow speed but the objective in Applicant's description is to increase ink flow. Thus, the artisan of ordinary skill who begins on the basis of Terasawa '305 chooses such an arrangement because of the desire to slow ink flow; such a person would never have found it obvious to turn the reference "on its head" to achieve the opposite.

For all of these reasons, Applicant respectfully submits that the combined teachings of Terasawa '305 and Terasawa '766 would not reasonably have ever been combined. Furthermore, even if combined, the artisan of ordinary skill would not have had any motivation to arrive at the claimed subject matter.

Furthermore, Terasawa '305 lacks any teaching or suggestion of a valve unit for opening/closing the ink flow passage. That is to say, even if Terasawa '305 might suggest that the air valve always closes the air hole while the suction pump decompresses the internal space of the capping unit (a suggestion Applicant respectfully does not find anywhere in Terasawa '305), the suggestion of Terasawa '305 is one that applies only to cases in which the ink flow passage is kept open.

All of the Terasawa '305 teachings relate to only a completely open ink flow passage. The ink sucking operation of Terasawa '305 through the nozzles requires the ink flow passage to be open. The removal of ink from the caps in Terasawa '305 assumes that the ink flow passage is open.

Although Terasawa '305 does not clearly describe whether a valve unit which opens or closes an ink flow passage is provided or not, the only reasonable conclusion is that Terasawa

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'305 does not comprise such a valve unit and the ink flow passage is left open. The sequences shown in Fig. 9 of Terasawa '305 are for preventing the ink flow speed from being increased excessively. Especially, to do this, the pumping operation is stopped as shown in Fig. 9D. If the valve unit is provided, such an operation is not necessary.

If the artisan of ordinary skill looked at Terasawa '766 and Terasawa '305 as a whole, and decided for some reason to adopt the approach of Terasawa '305 in the system of Terasawa '766, such a person would use the teachings of Terasawa '305 with the ink flow passage open. Such an adaptation of Terasawa '305 into Terasawa '766 clearly would not have met the requirements of claim 1 which require the decompression in question to occur "under a condition that the valve unit closes the ink flow passage and the capping unit seals the nozzle orifice".

Examiner's response to Applicant's arguments

The Examiner, in referring to Applicant's earlier remarks pointing out deficiencies of Terasawa '766 vis-à-vis claim 1, asserted on page 8 of the above-identified Office Action that Figs. 6D and 6E of Terasawa '766 "clearly show that the cap is closed when the pump is operated."

In response, Applicant respectfully points out that Figs. 6D and 6E show only that the cap open detection switch gives a low indication (6E) while the pump is operated 6D. It is true that the cap is on the head when the pump is operated in Terasawa '766. This is not enough, however, to meet the requirements of the claim.

In Terasawa '766, Fig. 6C shows that the air vent opens again (see degree position of about 200° of 6C) while the pump is still on, thus releasing the decompressed state before the suction pump stops (see degree position of about 230° of 6D). Claim 1, however, requires that "the air valve always closes the air hole while the suction pump decompresses the internal space of the capping unit". In Terasawa '766, the air valve only sometimes closes the air hole while the suction pump decompresses the internal space of the capping unit, and thus fails to meet the requirement of the claim.

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Conclusion: claims 1 and 4

An artisan of ordinary skill would not have (and could not have) combined the applied references in the manner suggested by the Examiner to produce the subject matter of independent claim 1, or its dependent claim 4. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claims 1 and 4.

Independent claim 66

In view of the similarities between independent claims 1 and 66, Applicant respectfully submits that the foregoing comments apply with equal force to the rejection of independent claim 66 and its dependent claims 67-68.

Independent claims 5 and 69

Independent claims 5 and 69 require that the decompressed state of the internal space of the capping unit be maintained while the suction pump is driven. This requirement is respectfully submitted to patentably distinguish over the combined teachings of Terasawa '766 and Terasawa '305, even taken as a whole, for generally the same reasons as set forth in the discussion of the rejection of claim 1.

Therefore, Applicant also respectfully requests the Examiner to withdraw this rejection of claims 5 and 66-74.

The rejection of claims 33-37 and 41.

The Examiner rejected 33-37 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Terasawa '766 in view of Terasawa '305 and further in view of Wu.

These rejected claims depend ultimately from independent claim 1 or independent claim 5, and thus the comments provided above apply with equal force here. It already has been demonstrated that the combined teachings of Terasawa '766 and Terasawa '305 fail to meet the requirements of claims 1 or 5. Wu does not compensate for these deficiencies.

In particular, Wu relates only to a particular valve structure which has "a diaphragm valve formed substantially from metallic materials to ensure purity of gas flowing therethrough".

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Wu contains no teaching or suggestion relating to ink printing at all, and thus provides no disclosure that would have enabled the artisan of ordinary skill to have overcome the deficiencies of Terasawa '766 and Terasawa '305 vis-à-vis claims 1 or 5.

Moreover, Wu is non-analogous art. It is not in the same field, and someone interested in opening/closing the ink flow passage would not have ever thought to consult a reference like Wu which deals only with the control of gas flow and maintaining high purity gas in systems. Even further, Wu is for high-pressure gases, and it is doubtful that the Wu valve would even operate at all if used with ink at the pressures normal in printers.

Claims indicated as being allowable.

Applicant thanks the Examiner for indicating the allowability of claims 38-40, but respectfully requests the Examiner to allow these claims in their present form in view of the comments provided above.

Conclusion and request for telephone interview.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Claims 80-88 are added.